

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: PELLENC, Roger

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EXAMINER: Punnoose, R. M.

TITLE: METHOD AND DEVICE FOR ANALYSIS OF THE STRUCTURE AND THE COMPOSITION OF CULTURED HEDGES SUCH AS FOR EXAMPLE ROWS OF VINES

Amendment A: CLAIM AMENDMENTS

Claims 1 - 21 (canceled).

21. (new) A system for analyzing a cultivated hedgerow comprising:

a machine having a motor and wheels and a working head, said motor being drivingly connected to said wheels so as to cause said machine to move along the cultivated hedgerows; and

an artificial vision system mounted to said machine forwardly of said working head, said artificial vision system comprising:

at least one light emitter positioned so as to be on one side of the cultivated hedgerow;

at least one light receiver facing the emitter and positioned so as to be on an opposite side of the cultivated hedgerow, the light emitter directly transmitting light toward the light receiver; and

a processing means connected to the light emitter and to the light receiver, said processing means for analyzing blockages of light occurring between the light emitter and the light receiver so as to produce an output relative to a structure of the cultivated hedgerow.

23. (new) The system of Claim 22, the light emitter suitable for emitting periodically modulated light, the receiver being sensitive only to the periodically modulated light.

24. (new) The system of Claim 22, the light emitter emitting light of either less than 400nm or of more than 750nm.

25. (new) The system of Claim 22, the light emitter comprising a front emitter positioned forwardly of a rear emitter, the light receiver comprising a front receiver positioned forwardly of a rear receiver, the front and rear emitters alternately emitting a modulated light at a frequency matching said front and rear receivers respectively.

26. (new) The system of Claim 22, said machine having rotary tools, said processing means for measuring a speed of the movement of said machine, said processing means cooperative with said rotary tools for adjusting a rotational speed of said rotary tools relative to the speed of movement of said machine.

27. (new) The system of Claim 22, said processing means for determining a position of a stake of the cultivated hedgerow.

28. (new) The system of Claim 22, said processing means for determining a position of a horizontal support.

29. (new) A system for analyzing a staked cultivated hedgerow comprising:

a machine having a working head mounted forwardly thereof;

an artificial vision system interconnected to said machine forwardly of said working head, said artificial vision system comprising:

at least one light emitter positioned so as to be on one side of the cultivated hedgerow;

at least one light receiver facing the emitter and positioned so as to be on an opposite side of the cultivated hedgerow, the light emitter directly transmitting light toward the light receiver;

a processing means connected to the light emitter and to the light receiver, said processing means for analyzing blockages of light occurring between the light emitter and the light receiver so as to produce an output relative to a structure of the cultivated hedgerow.

30. (new) The system of Claim 29, said artificial vision system further comprising:

an emitter module having the emitter affixed thereto, the light emitter having a front emitter and a rear emitter with a horizontal distance therebetween being less than a width of the stake; and

a receiver module having the light receiver affixed thereto, the light receiver having a front receiver and a rear receiver.

31. (new) The system of Claim 30, said receiver module having a first vertical row having the front receivers and a second vertical row having the rear receivers, said front emitter and said rear emitter suitable for alternately emitting modulated light at a frequency matching a receiving frequency of said front receivers and said rear receivers.

32. (new) The system of Claim 31, said receiver module having a third vertical row of intermediate receivers, said intermediate receivers having a lowermost receiver adjacent a lower part of said receiver module, said emitter module having a lower emitter positioned adjacent lower part of said emitter module, said lower emitter suitable for emitting light at a frequency matching a receiving frequency of said intermediate receivers.

33. (new) The system of Claim 29, said processing means for using the blockage of light to produce a measurement of a speed of said machine.

34. (new) The system of Claim 29, said processing means for measuring the blockage of light so as to detect a position of the stake.

35. (new) The system of Claim 30, said machine having a chassis, said receiver module and said emitter module being height-adjustably affixed to said chassis.

36. (new) The system of Claim 29, said working head being a cutting head with pruning elements thereon, said pruning elements being movable between a first position and a second position, said processing means being connected to an electro-distributor of a control valve connected to said cutting head for moving said pruning elements between said first and second positions.

37. (new) The system of Claim 29, said machine having a hydraulic motor drivingly connected to a rotary cutting tool, said processing means connected to a flow regulation valve of said hydraulic motor, said processing means connected to a rotation sensor for sensing a speed of rotation of said rotary cutting tool, said processing means for controlling the speed of rotation of said rotary cutting tool relative to a speed of movement of said machine.

38. (new) The system of Claim 36, said cutting head being vertically-adjustably mounted to said machine, said processing means connected to an electronic distributor of a control valve so as to cause said control valve to raise or lower said cutting head or the pruning elements thereon.